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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/509,390

06/28/2005

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EXAMINER

NELSON, MICHAEL E

ART UNIT

PAPER NUMBER

1794

MAIL DATE

DELIVERY MODE

08/29/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/509,390	Applicant(s) TSUJI ET AL.	
	Examiner MICHAEL E. NELSON	Art Unit 1794	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 July 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-3, 5 is/are allowed.
- 6) ☒ Claim(s) 6-14 is/are rejected.
- 7) ☒ Claim(s) 4 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 07/22/2008 has been entered.

Election/Restrictions

2. Claims 1-5 are allowable, subject to Applicants overcoming the claim objections to claim 4 as set forth in paragraph 16 below. The restriction requirement, as set forth in the Office action mailed on 08/07/2007, has been reconsidered in view of the allowability of claims to the elected invention pursuant to MPEP § 821.04(a). **The restriction requirement is hereby withdrawn as to any claim that requires all the limitations of an allowable claim.** Claims 6-13, directed to a non-elected species are no longer withdrawn from consideration because the claim(s) requires all the limitations of an allowable claim.

In view of the above noted withdrawal of the restriction requirement, applicant is advised that if any claim presented in a continuation or divisional application is anticipated by, or includes all the limitations of, a claim that is allowable in the present

application, such claim may be subject to provisional statutory and/or nonstatutory double patenting rejections over the claims of the instant application.

Once a restriction requirement is withdrawn, the provisions of 35 U.S.C. 121 are no longer applicable. See *In re Ziegler*, 443 F.2d 1211, 1215, 170 USPQ 129, 131-32 (CCPA 1971). See also MPEP § 804.01.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 10-13 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

5. Claims 10 and 12 both describe metal complexes with 3 primary ligands and an ancillary diketone-type ligand, resulting in 4 monoanionic bidentate ligands. Structures of this type are not commonly known in the art, and the specification provides no examples of these types of compounds. The structure shows specific iridium complexes with 2 primary ligands and an ancillary diketone type ligand. Therefore, for the cases where M is iridium the specification would support the amendment of formula (5) and (6) to require two, rather than three aryl-pyridine type ligands.

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 6-13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 6 states R' to R⁸, and later R' to R_a in the list of substituents. However, there is no R' or R_a in the structure referred to. From the specification it appears that R' should be corrected to R¹ and that R_a refers to R⁸.

9. Claim 12 states that R⁹ together with R¹⁰, or R¹⁰ together with R¹¹ can form a condensed benzo ring. However, formula (6) does not have R¹⁰ or R¹¹. The statements "R⁹ together with R¹⁰, or R¹⁰ together with R¹¹" should be removed.

10. In claim 6, a-haloalkyl and a-haloalkoxy should be corrected to α -haloalkyl and α -haloalkoxy as stated in the specification. Appropriate correction is required.

11. In claim 8, a-haloalkyl and d-haloalkoxy should be corrected to α -haloalkyl and α -haloalkoxy as stated in the specification.

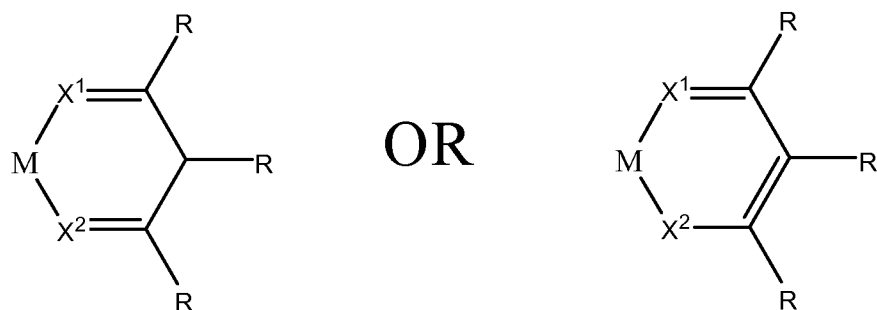
12. In claim 10, a-haloalkyl and a-haloalkoxy should be corrected to α -haloalkyl and α -haloalkoxy as stated in the specification.

13. In claims 6, 8, 10 and 12, parenthesis surrounding the formula description should be removed to indicate that the description is not an optional feature.

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14. In claims 10 and 12, the structure of formula (5) and (6) should be corrected to include the required additional double bond in the diketone-type ligand in the formula.

Examples of the correct substructure are shown below



Claim Objections

15. Claim 4 and 6, are objected to because of the following informalities:

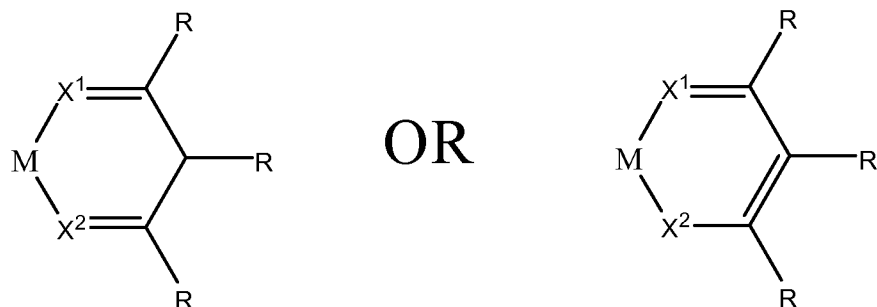
16. In claim 4, the substituent T' should be corrected to T¹, and T₂ should be corrected to T².

17. In claim 6, in the first line of the substituent description, R₈ should be corrected to R⁸ to match the formula.

Specification

18. The disclosure is objected to because of the following informalities:

19. On page 8 and 9, formulas (5) and (6) should be corrected to include the required double bond in the diketone-type ligand in the formulas. Examples of the correct substructure are shown below.



20. Appropriate correction is required.

Claim Rejections - 35 USC § 103

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

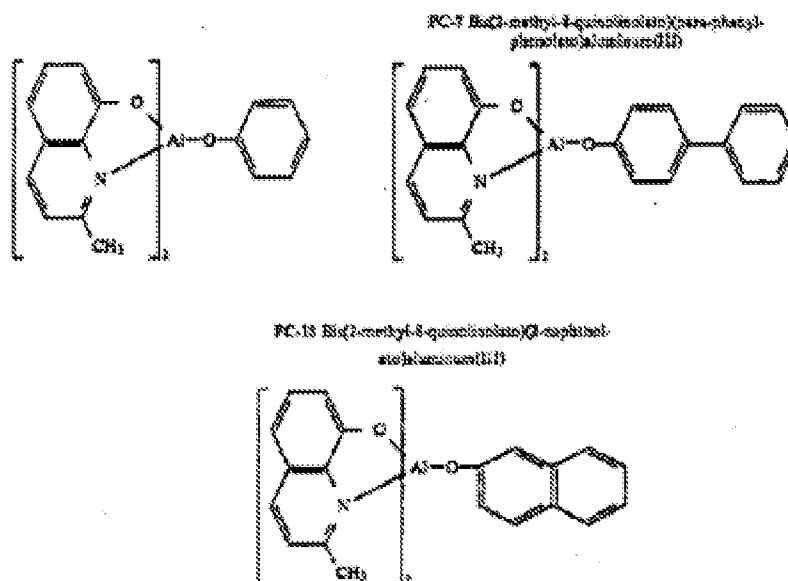
22. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Van Slyke et al. (5,150,006) in view of Shunk et al. (Journal of the American Chemical Society, v. 71, no. 12, December 1949).

23. Concerning claim 14, Van Slyke et al. describe an electroluminescent device comprised of material with the following structure, where Q represents a substituted 8-quinolinolato ligand, R⁵ represents a substituent on the 8-quinolinolato ligand, O-L is a phenolato ligand, and L is a hydrocarbon of 6-24 carbon atoms. (column 8, lines 16-28)



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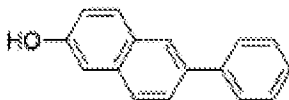
24. Van Slyke et al. disclose the following specific examples (columns 12, 13 and 15).



25. Van Slyke et al. further disclose that the compounds are derived from HO-L phenols, where L is a hydrocarbon from 6-24 carbon atoms comprised of a phenyl moiety. (column 9, lines 10-12) Furthermore, they report that there is little advantage to be gained with very large ligands, but that ligands with up to 18 aromatic ring carbons have revealed high levels of stability, and therefore the preferred ligands have between 7 and 18 total carbon atoms. (column 9, lines 18-24) Van Slyke et al. clearly describe compounds with a naphthalene ring (as shown in the third structure above) as the first ring of the phenolic ligand, and also describe compounds with a phenyl substituent pendant off of the first ring of the phenolic ligand (shown in the second structure above). Van Slyke et al. are silent on the use of the specific phenyl substituted naphthalene ligand shown below.

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26. Shunk et al. disclose the synthesis of a substituted phenolic compound with the following structure.



27. Based on the general teaching by Van Slyke et al. that the ligand should contain from 7-18 carbons (this ligand has 16 carbons), and the fact that larger ligands exhibit higher stability, and the fact that the precursor phenolic compound is known in the literature, it would have been obvious to one of ordinary skill in the art to synthesize the structure shown below with the intent of improving stability by increasing the size of the phenolate ligand.

Response to Amendment

28. The declaration under 37 CFR 1.132 filed 07/22/2008 is sufficient to overcome the rejection of claims 1-5 based upon Haase et al. (6,791,258) in view of Van Slyke et al. (5,150,006) and Shunk et al. (Journal of the American Chemical Society, v. 71, no. 12, December 1949).

29. The rejection of claim 14 is maintained. While the declaration is commensurate in scope with claims 1-5, drawn to an organic electroluminescent device comprising compound of formula (1) used as a host material for a phosphorescent dopant, it is not commensurate in scope with claim 14, which is drawn only to the compound of formula (1). While the declaration shows unexpected or surprising results of electroluminescent devices comprising the presently claimed compound as a host material for a

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phosphorescent dopant, there is no showing of unexpected or surprising result for the compound as compared with the closest prior art concerning the compound itself. The closest prior art relevant to the compound claim is Van Slyke et al. (5,150,006) which uses the material as a light emitting material singly, or as a host for a fluorescent dopant material. Therefore, the declaration should compare the material shown in the prior art used in the same manner as that in the prior art for comparative purposes to determine the patentability of the compound claim.

Response to Arguments

30. The double patenting rejection is withdrawn in light of Applicant's declaration.

31. Applicant argues that the compound itself is non-obvious because Shunk is non-analogous art. However, since the field of endeavor concerning the compound itself is in synthetic chemistry, it is well within the level of ordinary skill to find references in diverse fields which teach compound synthesis.

32. As stated in the MPEP 2144.08(d):

33. It is the properties and utilities that provide real world motivation for a person of ordinary skill to make species structurally similar to those in the prior art. Dillon, 919 F.2d at 697, 16 USPQ2d at 1905; In re Stemniski, 444 F.2d 581, 586, 170 USPQ 343, 348 (CCPA 1971).

34. Given the teaching by Van Slyke et al. of structurally diverse aluminum complexes which are useful in electroluminescent devices, it would have been obvious to one of ordinary skill to seek analogous compounds. A structure search for hydroxyl

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substituted aromatic hydrocarbon compounds would yield the compounds described by Shunk. Since the final product would be reasonably predicted to maintain the functional properties described by Van Slyke et al., it would have been obvious to use the modified phenol compound described by Shunk as a synthetic intermediate. In this regard Shunk teaches only that the necessary chemical intermediate is known to one of ordinary skill in the art of chemical synthesis, to enable one to make the specific species claimed.

Allowable Subject Matter

35. Claims 1-3 and 5 are allowed.

36. The following is a statement of reasons for the indication of allowable subject matter: The showing in the 1.132 declaration of an unanticipated improvement in device stability utilizing materials of the present invention compared with materials known in the art has demonstrated that the devices as claimed are not obvious with respect to the prior art.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to MICHAEL E. NELSON whose telephone number is (571)270-3453. The examiner can normally be reached on M-F 7:30am-5:00pm EST (First Friday Off).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Callie Shosho can be reached on 571-272-1123. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Michael E. Nelson
Examiner
Art Unit 1794

/Callie E. Shosho/
Supervisory Patent Examiner, Art Unit 1794